

PREVENTIVE PHYSIOTHERAPY IN INDUSTRY<sup>1</sup>

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Working time lost through industrial injury throughout Australia in 1973-4 amounted to some one and a quarter million man-weeks, costing in excess of one hundred million dollars, this figure being deduced from the total of claims under Workers' Compensation and Employers' Liability. About 28% of recorded injuries resulted directly from accidents during manual handling. A further 22% resulted from falling, slipping and tripping. In both classifications, sprains and strains were predominant. A relatively high occurrence of tenosynovitis and other soft tissue injuries, probably the result of repetitive motion and/or prolonged poor posture at work, were recorded. The implication is that over half of all industrial injuries are directly related to posture and body mechanics, the area in which physiotherapists are particularly interested and in which they are qualified to implement preventive action.

In spite of present inadequacies and lack of consistency in reporting industrial injuries in the various States, the statistics disclose the existence of a national problem, a wastage of human and financial resources which is unacceptably high. The problem is basically one of inadequate knowledge and lack of effective and sufficient preventive action. Prevention is hard to sell because most people have never learnt to accept responsibility for accident prevention, not only to themselves, but to the community in general. Physiotherapists must be prepared to meet public apathy and official caution. Popular conscience must be aroused, not only to the need for preventive action, but also to the need for extensive research into the ergonomic, bio-mechanic, neuro-physical, psycho-physical and environmental factors causing industrial injury.

## PRESENT INVOLVEMENT OF PHYSIOTHERAPY IN INDUSTRY

In Britain, preventive physiotherapy in industry began in the Second World War when it became vital to economize in manpower and to keep the work-force on the job. As a result of this experience the British Association of Chartered Physiotherapists in Industry was formed in May 1947. Courses and lectures on all recent developments are arranged and meetings are held three times a year. The current active membership is eighty, and members are employed, full or part-time, in industries as varied as heavy steel, mining, large stores and office blocks, and, in one case, as a mobile industrial physiotherapist.

These industrial physiotherapists are directly responsible to company medical officers, and also accept referrals from general practitioners and specialists. Such direct referral makes it possible for injuries and other medical conditions to be treated in the factory medical centre without loss of time, a vital factor in reducing costs. Rehabilitation and re-training of patients are dealt with on the shop-floor to suit factory work pressures, with their particular jobs in mind and directly applicable to job requirements. Because of the close co-operation of medical disciplines, treatments can be planned on a basis of total medical care, consideration being given, when necessary, to returning patients initially to light duties as part of their personal rehabilitation programme.

The industrial physiotherapist with the co-operation of the company safety and training officers, gives lectures and demonstrations on kinetic handling and advises on such ergonomic factors as the height and placing of work benches, tables and seating, which, for the avoidance of strains and soft-tissue injuries, must be appropriate to users' dimensions. Talks are given to female employees on childbirth education and the especial care

<sup>1</sup>Delivered at the XIV Biennial Congress of the Australian Physiotherapy Association, Sydney, August 1975.

necessary on resumption of work. Pre-retirement talks, and advice on "keep fit" and recreational programmes are also given. In Scandinavia, the majority of practising physiotherapists devote up to 60% of their time to shop-floor ergonomics, in lectures on kinetic handling and in posture correction. In Denmark in 1972, fifty physiotherapists formed the Physiotherapists' Ergonomic Group. In Sweden, notable pioneering preventive work has been done, and is being continued in the Forestry Industry. Periodic conferences are held at which physiotherapists from all Scandinavian countries working in industry meet to co-ordinate their efforts and share experiences, exchanging details of training courses and methods. Attempts are currently being made to compose a Functional Analysis of Physiotherapy in Industry with the preparation of a draft agreement for the whole of Scandinavia. The results of this attempted paradigm are awaited with great interest, and are likely to have direct application to the Australian industrial problem.

In New Zealand, pioneering work by a consultant physiotherapist training workers in handling and work-postures is proceeding and the Public Health Department is planning to establish regular courses in kinetic handling techniques. In the United States and Canada, full-time industrial physical therapists are employed by some of the larger companies. In general, the Workmen's Compensation Boards, set up in most States, employ a few physical therapists who, apart from their primary function of treating workers' compensation cases, are available to lecture in factories on ergonomics and manual handling. In addition these Boards concern themselves with the collection and interpretation of injury statistics, and publish instructional and informative pamphlets on injury prevention.

In Australia, there are at present few industrial physiotherapists. Some are employed in department stores, in vehicle assembly plants and other large factories and in private work. At present no co-ordinated attempts have been made to institute a campaign of preventive physiotherapy in industry. At one major assembly plant in South Australia, a physiotherapist with industrial experience was engaged in February 1974 on a trial

basis. The reduction of compensation costs for the factory has been so dramatic that there has now been an increase in physiotherapy staff. Their duties consist primarily of the treatment of company employees, as required by the company medical officer, general practitioners and specialists. They also organize kinetic training for workers, visit the plant to check working conditions and assess job suitability, especially of patients; assist the company medical officer in checking fitness for employment; and instruct factory working staff as necessary. A full rehabilitation programme, including a gymnasium and sheltered workshop, employing occupational therapists and social workers in addition to physiotherapists, is planned. Some research into industrial injuries is being conducted by the Physiotherapy Department of the University of Queensland, by the Occupational Health Service of the University of Sydney, by some major hospitals, Government departments and private practitioners.

#### THE FUTURE OF PREVENTIVE PHYSIOTHERAPY IN INDUSTRY

There is a steadily increasing demand for adequate preventive measures to keep the work-force fit and at work. This demand is contributed to by the powerful trade unions which continually seek improved conditions for their members. It is to the financial advantage of the larger industrial concerns to employ, and of the insurance companies to encourage the employment of, salaried, part-time or sessional physiotherapists in factories and other industrial undertakings. Our profession should plan for a steady increase in the employment of industrial physiotherapists, to lay down guidelines for conditions of such employment and to form the nucleus of a specific interest industrial group.

Apart from treatments of injured employees, the duties of the industrial physiotherapist would ideally include assisting the company medical officer with physical examinations of employees; training employees in the principles of kinetic handling and body mechanics for the avoidance of skeletal strains; ensuring that all incidents leading to injury are documented and investigated; advising on correct static and dynamic work postures; talking with female employees on

childbirth education and the care necessary on subsequent resumption of employment; analysing each task to identify job-oriented causes of injury and to determine suitable preventive measures; surveying the ergonomic factors involved in each job to include environments, for example, noise levels, lighting, ventilation, the height and convenience of benches, tools and sequences of movement, the evenness of floors, the existence and suitability of hand-supports and seating; advising supervisors on the placement of workers regarding their physical developments and aptitudes; arranging, with the co-operation of supervisors, alternative jobs or substituting new or altered work methods for patients, to assist speedy return to full physical ability; teaching employees exercises to correct poor posture and development of other physical defects; maintaining a "keep-fit" programme for employees; advising on recreational programmes, and giving pre-retirement talks.

Treatment of injury can be carried out with the patient's particular job in mind, and advice given on measures to avoid repetition of the injury. Patients can be kept on light work while undergoing treatment, until they are passed fit for heavy work. Jobs or work methods can be changed to allow more beneficial postures by altering seating or work level for patients with specific disabilities, for example, patients with internal derangement of knees or unstable ankles would be given work which avoided ladders and steep ramps. Every employee beginning work involving repetitive hand and wrist movements would be "graded" into it and taught strengthening exercises. Workers with small hands would be employed only upon tasks within their normal compass; and all such repetitive workers would be instructed to report to the medical centre at the first sign of discomfort, for rest or re-allocation to lighter duties or to one-handed tasks until full recovery.

Special circumstances exist in the case of migrant workers of poor education and peasant upbringing. Many of these understand little English, may be unable to read, and may have poorly developed physiques owing to lack of adequate nourishment in childhood. They may be unfamiliar with the tasks they are expected to do. The majority of such people are forced by their lack of

education to accept labouring jobs. Consequently they are exceptionally liable to muscular strains and back injuries. This area could involve the use of consultant physiotherapists in clinics and factories, where lectures and demonstrations would be given with the help of interpreters and of visual aids. Useful instructional films and film-strips are currently available.

It is clear that the problem of industrial injury cannot be resolved solely by the preventive action of individual industrial physiotherapists; nor can it be expected that every industrial undertaking would be able to obtain or to afford the services of a physiotherapist. The problem is a national one and preventive measures need to be applied on a national basis. There should be Workers' Clinics in every industrial centre, charged with a dual therapeutic/preventive responsibility, with mobile physiotherapists as consultants to management, giving lectures and demonstrations in work places as a normal part of industrial training routines.

The elements of ergonomics and kinesiology taught by physiotherapists should form an integral part of every teacher-training course; and pressure should be brought to bear on governments to incorporate the teaching of these principles as a normal part of physical education at all levels. Such training should also be given to the Armed Services and all organisations involved in Civil Defence. By such means everyone entering the work-force would be trained in the essential principles of self-preservation at work. Appeals to self-interest should motivate industrial leaders, insurance companies and trade unions to give active support for such a national programme.

There is need for research into the most effective methods of educating the public into the principles of body mechanics, embracing correct posture in standing, sitting, walking, in manual handling and methods of work, and in general economy of movements. Everyone should learn the arts of correct breathing, relaxation and the maintenance of physical fitness. The fashion conscious need to be encouraged to select suitable clothing and shoes; and the overweight to be alerted to reduce weight for the avoidance of strains and other difficulties.

## CONCLUSIONS

Numerous workers fill jobs for which they are physically ill-adapted, in work places that are badly designed and environmentally unsuitable. The majority of workers entering industry receive no basic physical training for the work they are required to do. All these factors can be remedied given determination and time, to achieve a lasting over-all reduction in work injuries. A national preventive programme, using consultant physiotherapists, would have the support of the most powerful influences in the country; and would supplement and amplify the National Safety Body recommended in the "Woodhouse Report". Our profession has a responsibility towards the development of services to meet the challenge of industrial injury, an area possessing great employment potential for the future, for the mutual benefit of industry, workers, and the nation as a whole.

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